



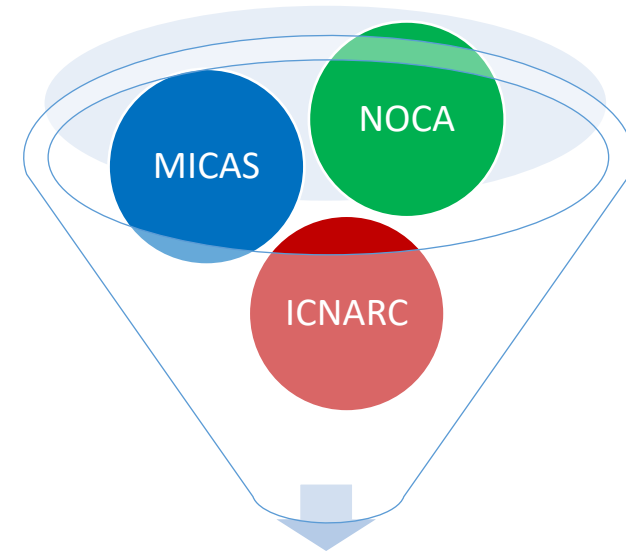
MICAS in pandemic, an observational study.

Anna Marie Murphy, Dr Peter Moran



# METHODOLOGY

- Retrospective Review MICAS data
- Activity - triangulation
- Outcomes – MICAS West Hub



Inter hospital transfers

- Ethical Approval University Hospital Galway

# Mobile Intensive Care Ambulance Service - MICAS

- Semi-elective transfer of critically ill patients, who require an **increase in the level** of care provided e.g. dialysis
- Semi-elective transfer of critically ill patients who require **specialised** treatment in a specialised / national centre e.g. ECMO, neurosurgery, cardiothoracic surgery
- Transfer of patients requiring critical care services due to **bed capacity** issues
- Patients under age of 16 who due to their specialist needs / size, need adult facilities
- **Repatriation** of critical care patients to their local Units for on-going care

# Critical Care and Retrieval Services (CCRS)

## NATIONAL RETRIEVAL SERVICE



### • MICAS - **East**

- 8am – 8 pm alternate weeks
- 9am-5pm 1 week / 4weeks
- 8am – 8pm Weekends

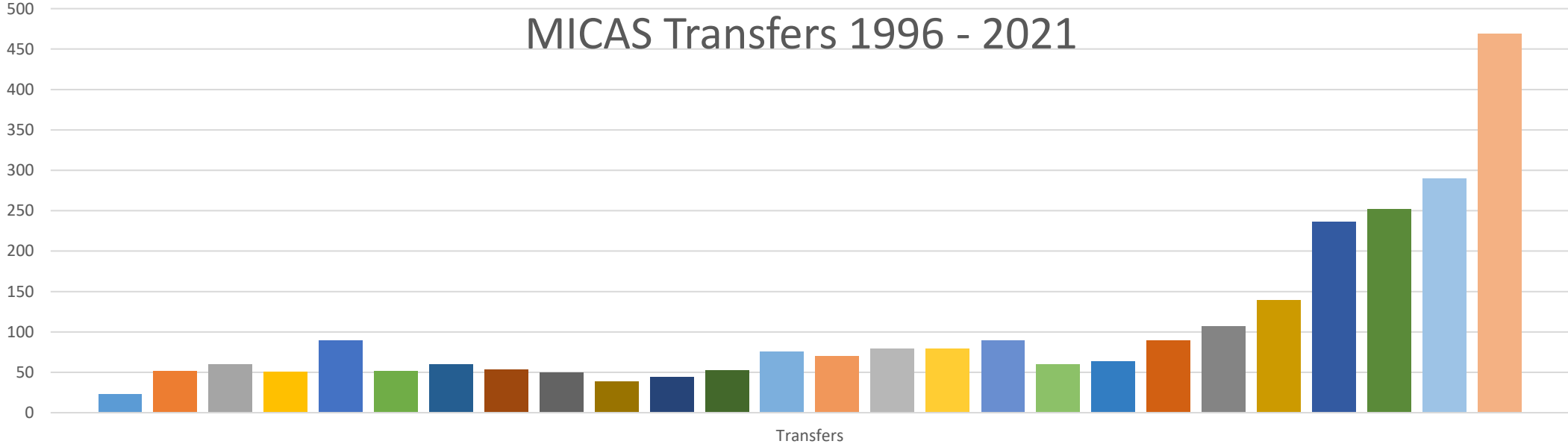
### • MICAS - **South**

- 8am – 8 pm Monday - Friday

### • MICAS - **West**

- 8am – 8pm Monday- Friday

# MICAS Activity

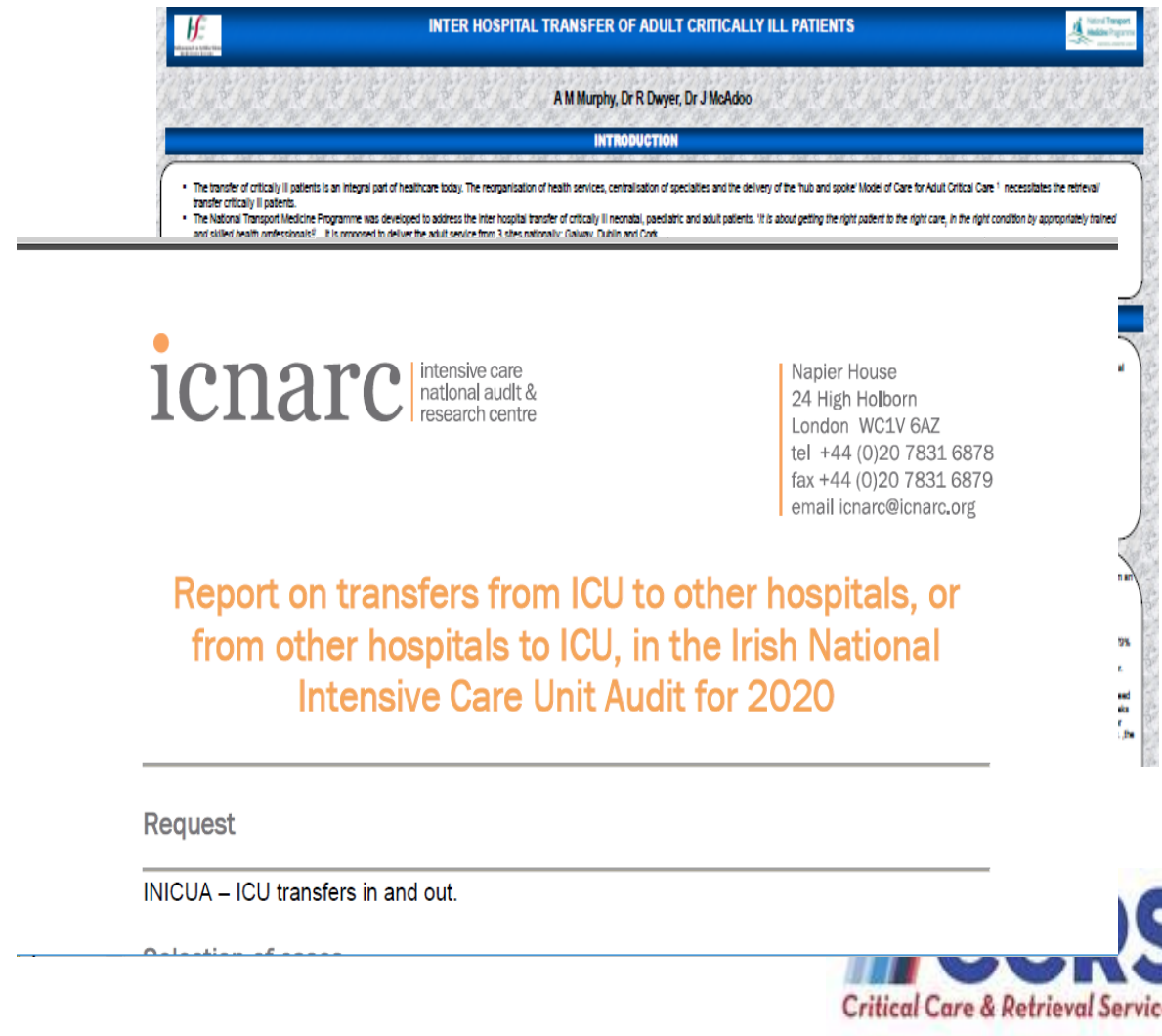


■ 1996 ■ 1997 ■ 1998 ■ 1999 ■ 2000 ■ 2001 ■ 2002 ■ 2003 ■ 2004 ■ 2005 ■ 2006 ■ 2007 ■ 2008  
■ 2009 ■ 2010 ■ 2011 ■ 2012 ■ 2013 ■ 2014 ■ 2015 ■ 2016 ■ 2017 ■ 2018 ■ 2019 ■ 2020 ■ 2021



# How many inter hospital transfers?

- Survey (2016) 880 patient per annum
- ICNARC (2022) 531 patients in 2020
- MICAS transferred 290 patients (55% of ICNARC)
- Excludes transfer from outside ICU



**INTER HOSPITAL TRANSFER OF ADULT CRITICALLY ILL PATIENTS**

A M Murphy, Dr R Dwyer, Dr J McAdoo

**INTRODUCTION**

• The transfer of critically ill patients is an integral part of healthcare today. The reorganisation of health services, centralisation of specialties and the delivery of the hub and spoke Model of Care for Adult Critical Care<sup>1</sup> necessitates the retrieval/transfer critically ill patients.

• The National Transport Medicine Programme was developed to address the inter hospital transfer of critically ill neonatal, paediatric and adult patients. It is about getting the right patient to the right care, in the right condition by appropriately trained and skilled health professionals. It is intended to deliver the adult service from 3 sites nationally: Galway, Dublin and Cork.

**icnarc** intensive care national audit & research centre

Napier House  
24 High Holborn  
London WC1V 6AZ  
tel +44 (0)20 7831 6878  
fax +44 (0)20 7831 6879  
email icnarc@icnarc.org

**Report on transfers from ICU to other hospitals, or from other hospitals to ICU, in the Irish National Intensive Care Unit Audit for 2020**

Request

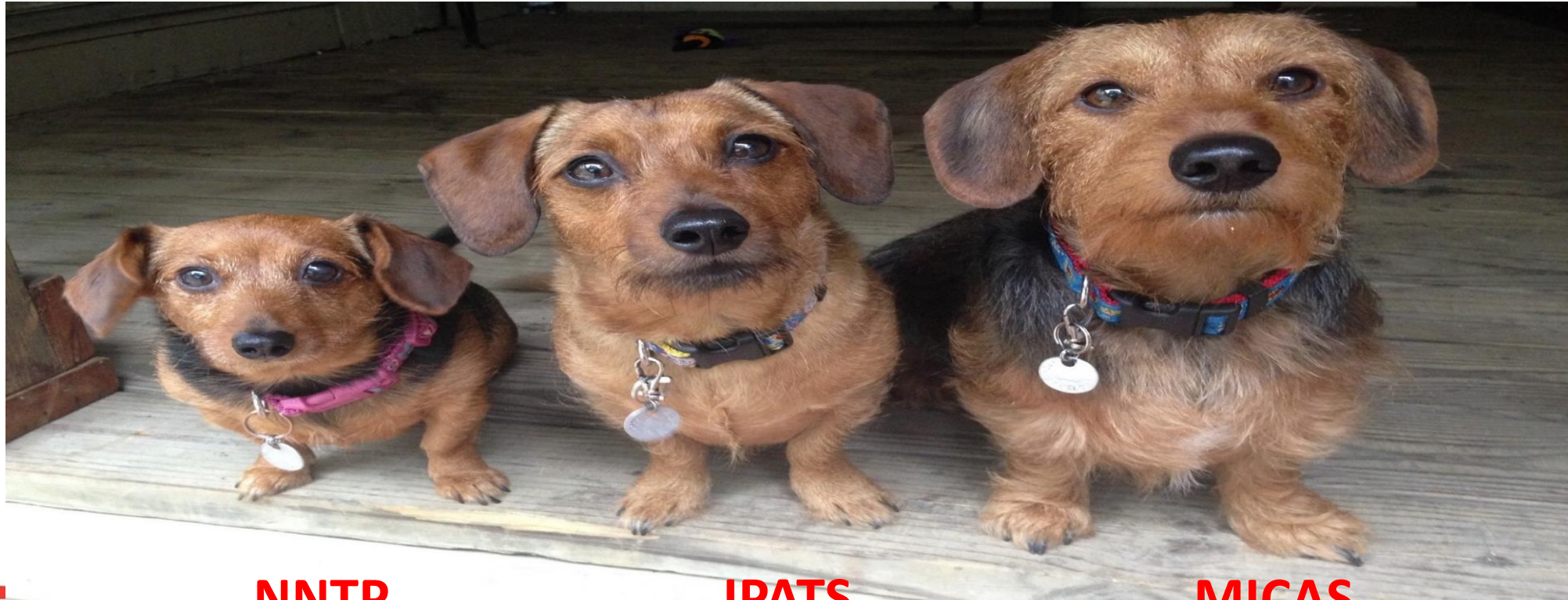
INICUA – ICU transfers in and out.

**CCRS** Critical Care & Retrieval Services



# CCRS

Critical Care & Retrieval Services



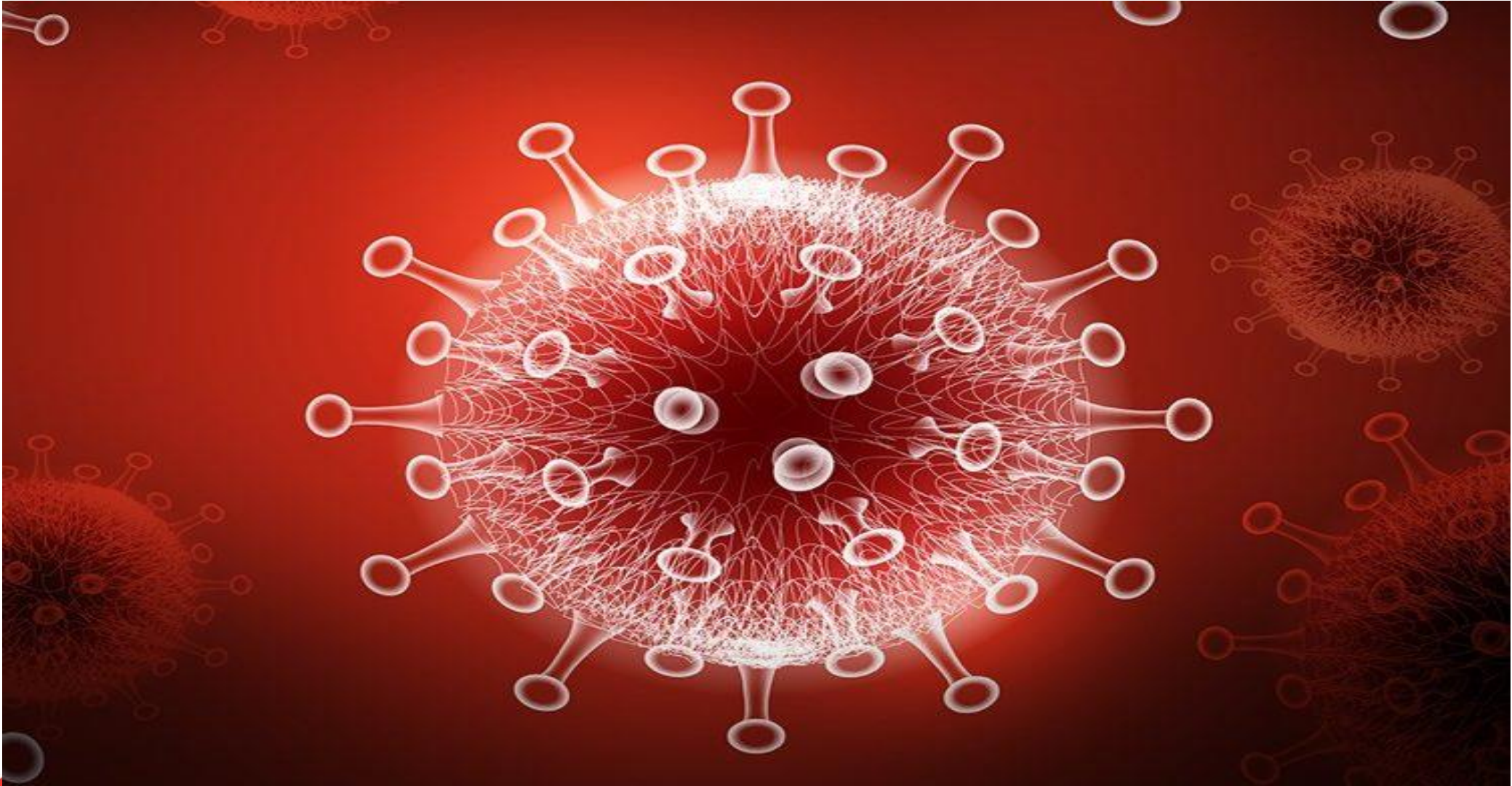
**NNTP**

**IPATS**

**MICAS**









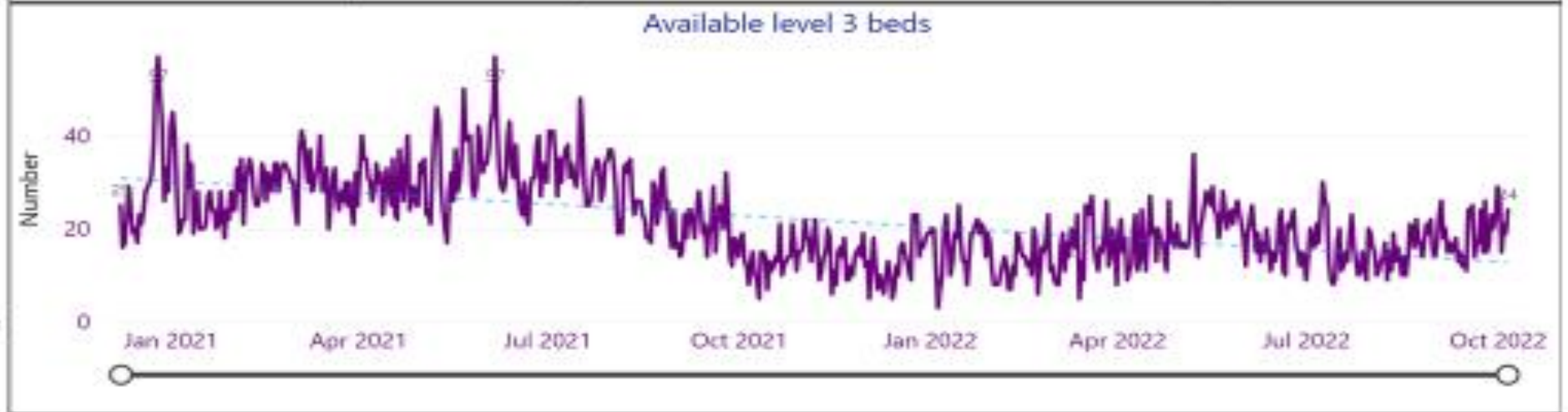
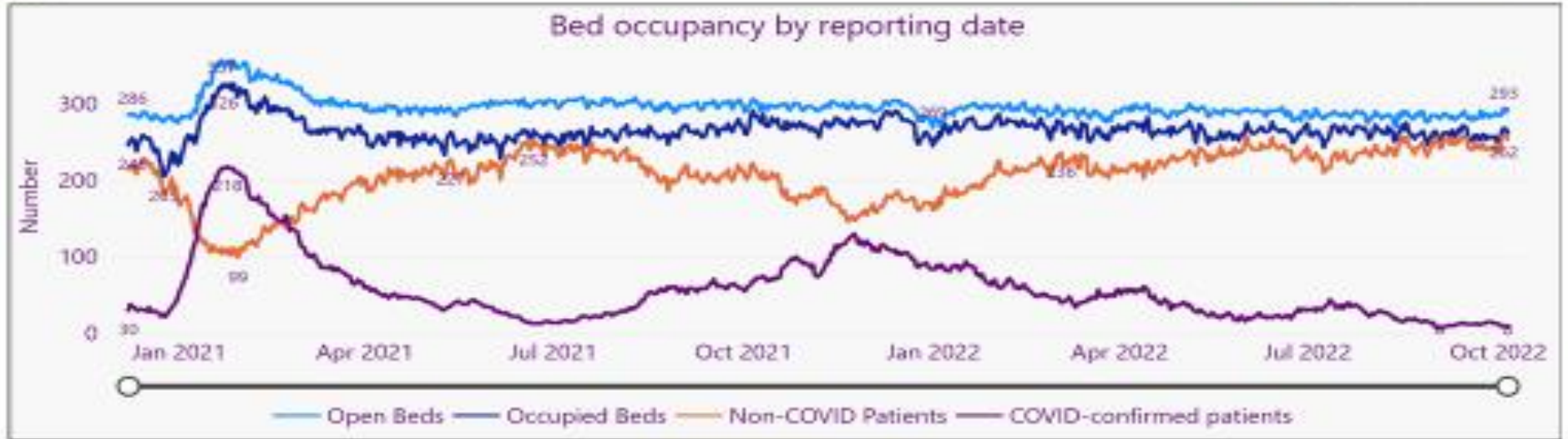
Reporting Date

Last 22 Months

12/8/2020 - 10/7/2022

Hospital selection: Adult...

- Select all
- Adult (Public)
  - IEHG
  - Midlands
  - RCSI
  - Saolta
  - SSWHG
  - ULimerick
- Paediatric
- CHILDREN
- Private
- PRIV



**Preliminary Data** The data displayed in this report is preliminary. Users of these statistics should be aware that preliminary statistics might change when data sources have been updated.

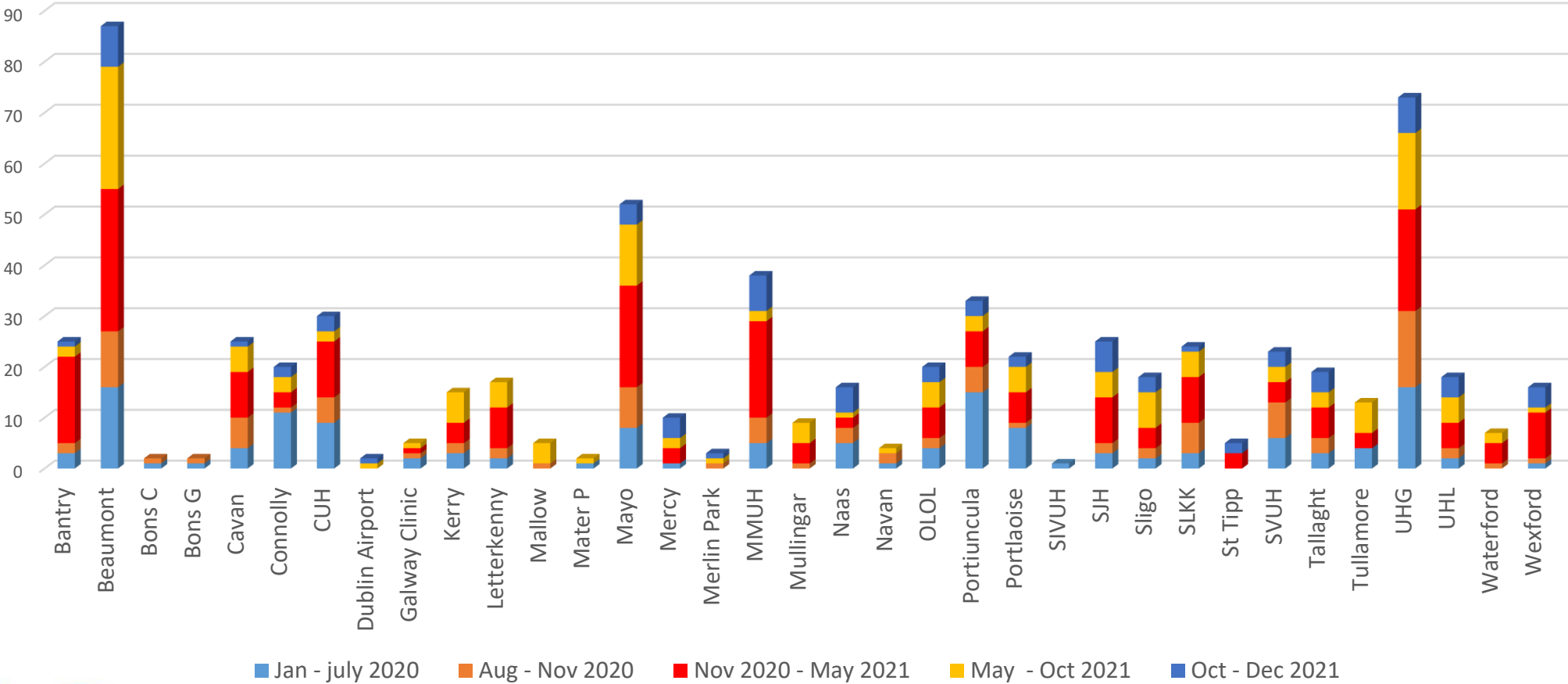
# COVID-19 Timeline - Ireland



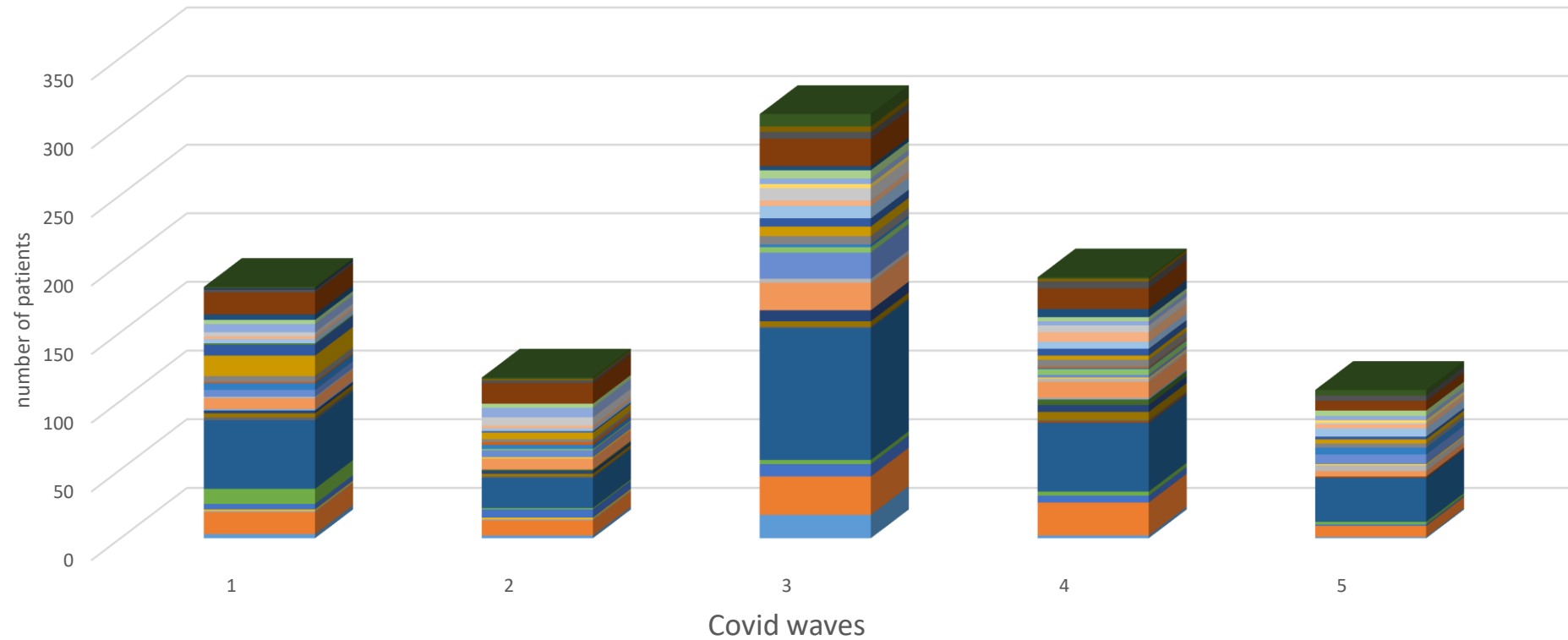
**27 MAR 2020**  
Taoiseach announces first lockdown



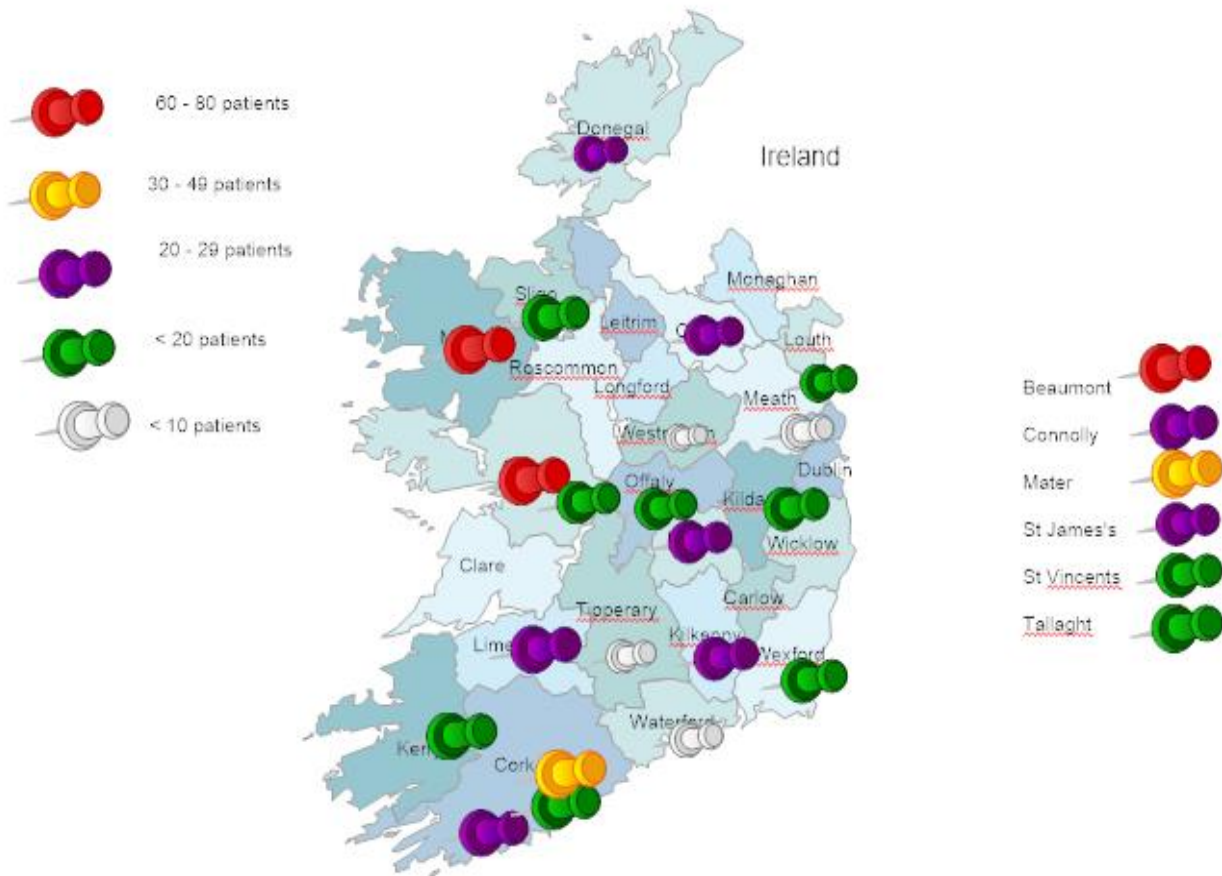
# REFERRING HOSPITALS – COVID WAVES



# MICAS RESPONSE TO COVID WAVES







## 2020

- 1<sup>st</sup> Covid patient transferred 7<sup>th</sup> March 2020

## 2021

- 31<sup>st</sup> January - 7 critically ill patients in one day
- On 4 occasions 5 patients were transferred in one day
- On 8 occasions a hub undertook 3 transfers in one day
- The inaugural aeromedical transfer of a critically ill patient
- 18 patients were transported on ECLS (100% increase from 2020)

# DIRECT Vs INDIRECT EFFECTS OF COVID 19

OBSERVATIONAL STUDY

OPEN

## Interhospital Transfer Outcomes for Critically Ill Patients With Coronavirus Disease 2019 Requiring Mechanical Ventilation

Anaesthesia 2022, 77, 398-404

doi:10.1111/anae.15680

Original Article

## Patient outcomes following transfer between intensive care units during the COVID-19 pandemic

F. Huq,<sup>1</sup> E. Manners,<sup>2</sup> D. O'Callaghan,<sup>3</sup> L. Thakuria,<sup>3</sup> C. Weaver,<sup>3</sup> U. Waheed,<sup>3</sup> R. Stümpfle,<sup>3,4</sup> S. J. Brett,<sup>3,5</sup> P. Patel<sup>3,4</sup> and S. Soni<sup>3,4</sup>

1 Internal Medicine Trainee, 2 Foundation Year Trainee, 3 Consultant, Department of Critical Care, Imperial College Healthcare NHS Trust, London, UK

4 Honorary Senior Clinical Lecturer, Division of Anaesthetics, Pain Medicine and Intensive Care, 5 Professor, Department of Surgery and Cancer, Imperial College London, UK

### Summary

Transferring critically ill patients between intensive care units (ICU) is often required in the UK, particularly during the COVID-19 pandemic. However, there is a paucity of data examining clinical outcomes following transfer of patients with COVID-19 and whether this strategy affects their acute physiology or outcome. We investigated all transfers of critically ill patients with COVID-19 between three different hospital ICUs, between March 2020 and March 2021. We focused on inter-hospital ICU transfers (those patients transferred between

Save

Email

Review > Eur J Public Health. 2021 Jul 13;31(3):634-640. doi: 10.1093/eurpub/ckab047.

## Assessing the indirect effects of COVID-19 on healthcare delivery, utilization and health outcomes: a scoping review

Charlotte M Roy<sup>1,2</sup>, E Brennan Bollman<sup>1,2</sup>, Laura M Carson<sup>2</sup>, Alexander J Northrop<sup>3</sup>, Elizabeth F Jackson<sup>2</sup>, Rachel T Moresky<sup>1,2</sup>

Affiliations + expand



Coronavirus  
COVID-19  
Public Health  
Advice

The impact of the COVID-19 pandemic and the societal restrictions on the health and wellbeing of the population, on our staff and on health service



# DIRECT CARE

- Delivery of extended MICAS service
- Training with teams
- Extended hours of working
- Novel ways of working
  - Doffing / Donning
  - Ambulance decontamination
  - Use of portering / security staff to isolate through hospital
- Policies and guidelines
  - Transfer of Covid patient
    - Filters, turbulence, PPE
  - Transfer of Proned patient



# DIRECT CARE

MICAS PATIENTS	2020 Total	2020 Covid	2021 Total	2021 Covid
	Total	Covid	Total	Covid
Number of transport records	290	82	469	181
Number of records available	280	82	449	164
Not transferred patients	6		5	

- 96% of patient records were evaluated (4% missing).
- 1.4% of patients were not transferred due to increase in acuity.





# MICAS PATIENTS

		2020 Total	2020 Covid	2021 Total	2021 Covid
<b>Age</b>	Average	59	54.57	55.6	54.8
	Median	59	55	57	57
	Mode		44,67	46,54	47, 61
	SD	15.1	14	16.3	14.4
<b>Gender</b>				Total	
	M	64%	66.6	62%	65%
	F	36%	33.4%	38%	38%



# MICAS PATIENTS

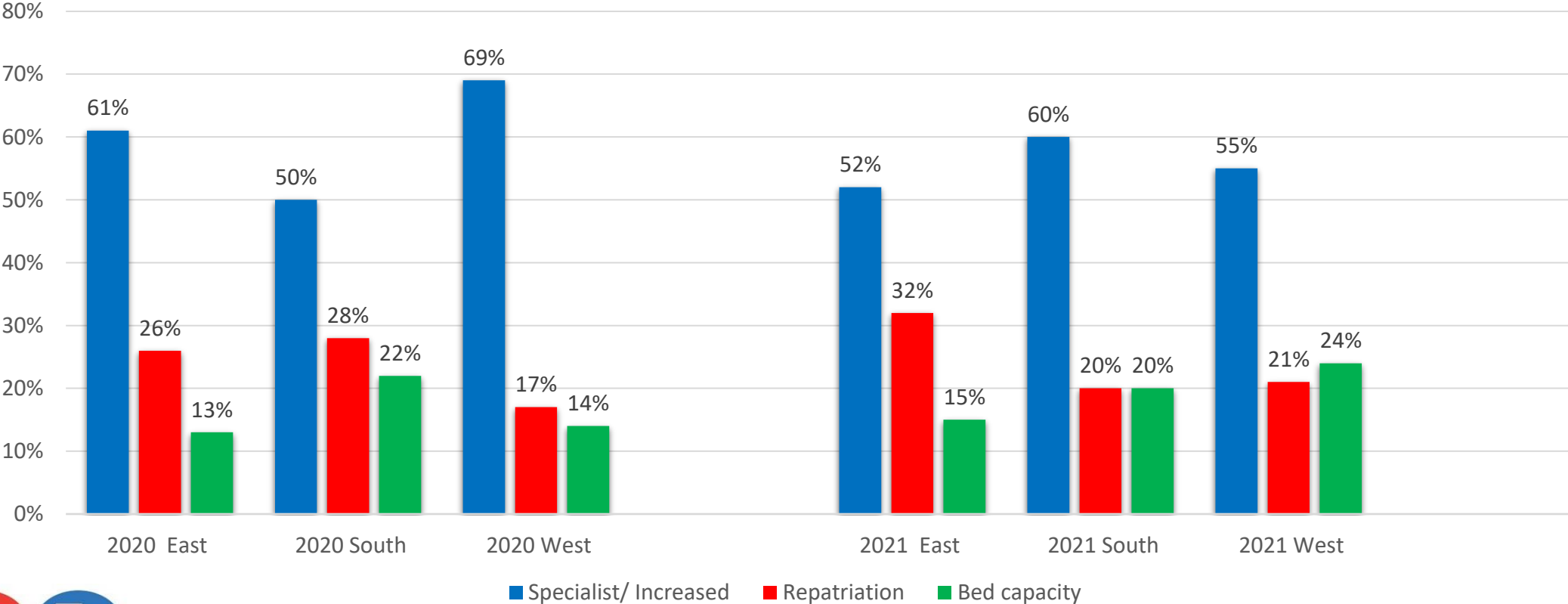
	2020 Total	2020 Covid	2021 Total	2021 Covid
<b>Invasive Airway</b>				
ETT	52.5% (n=147)	66%(n=54)	57%(n=256)	64.6% (n=106)
Trachy	23%(n=65)	21%(n=17)	21%(n=94)	20% (n=33)
<b>Vasopressors</b>				
One vasopressor	37%	49%	42%	38%
More than 1 vasopressor	4.60%	9.60%	4%	0
<b>CVC</b>	64%	78%	71%	88%
<b>Arterial line</b>	84%	96%	84%	88%
<b>Chest drains</b>	8.5%	9.50%	5%	1.50%

# MICAS PATIENTS

	2020 Total	2020 Covid	2021 Total	2021 Covid
<b>Days in hospital pre transfer</b>				
Mean	10.6	9.6	11.1	10.8
Median	7	5.3	5.1	4.3
IQR	10.3	17.1	11.3	13.3
Transfer day 0	20%	12%	10%	8%

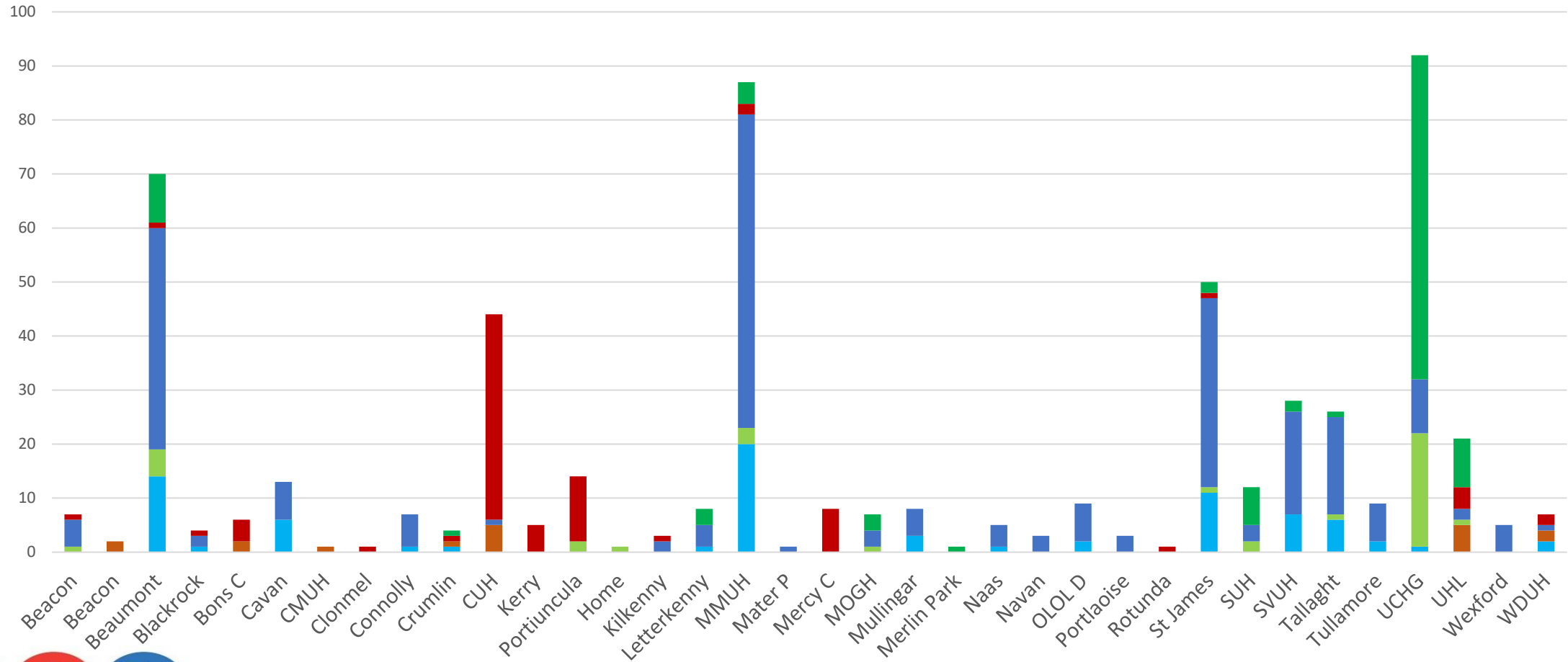
# MICAS PATIENTS

## REASON FOR TRANSFER



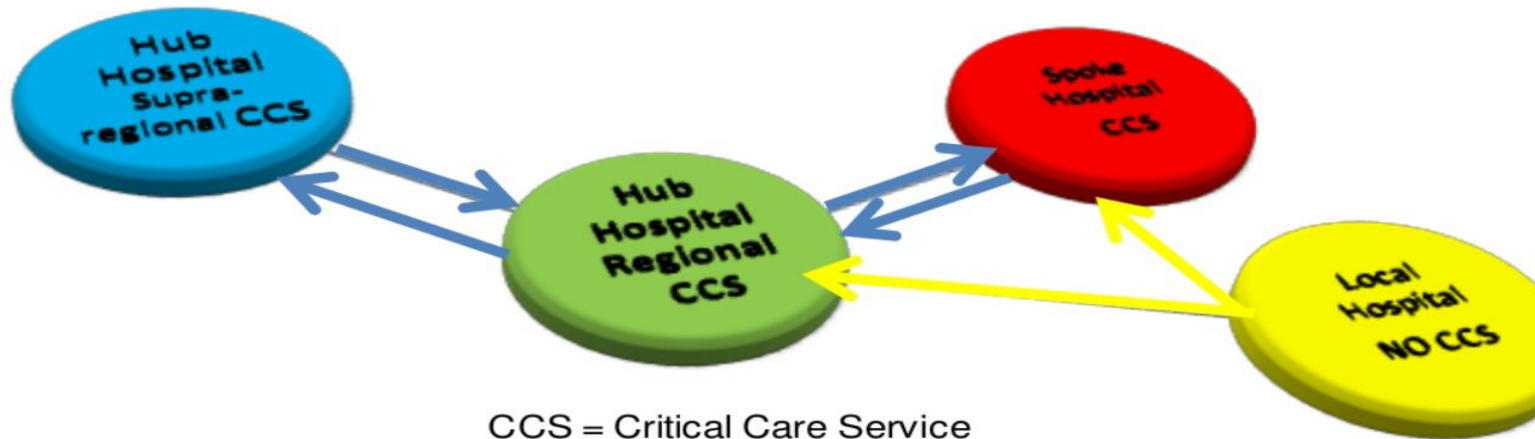


# RECEIVING HOSPITALS 2020 - 2021





## Critical Care Programme Hospital Group 'hub-and-spoke' Critical Care Model



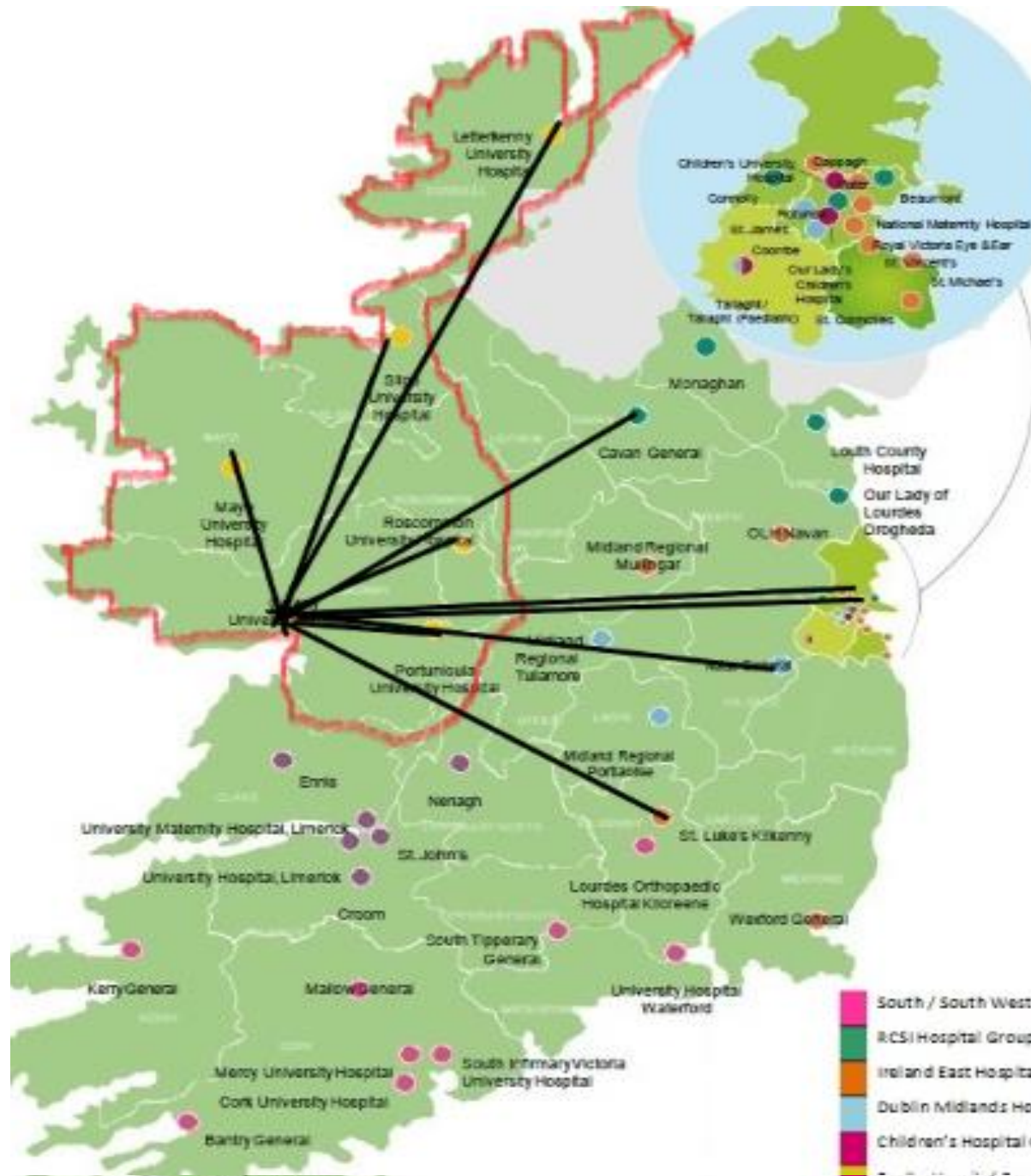
CCS = Critical Care Service



Critical Care Retrieval- safe inter-hospital critically ill patient transport  
National Ambulance Service NAS  
Pre-Hospital Emergency Care PHEC  
transport and bypass procedures

# SAOLTA GROUP

128 MICAS transfers  
August 2020 to Dec 2021



# OUTCOMES OF MICAS TRANSFER TO SAOLTA HUB

25% Covid related illness

48% Ventilated

15% CRRT

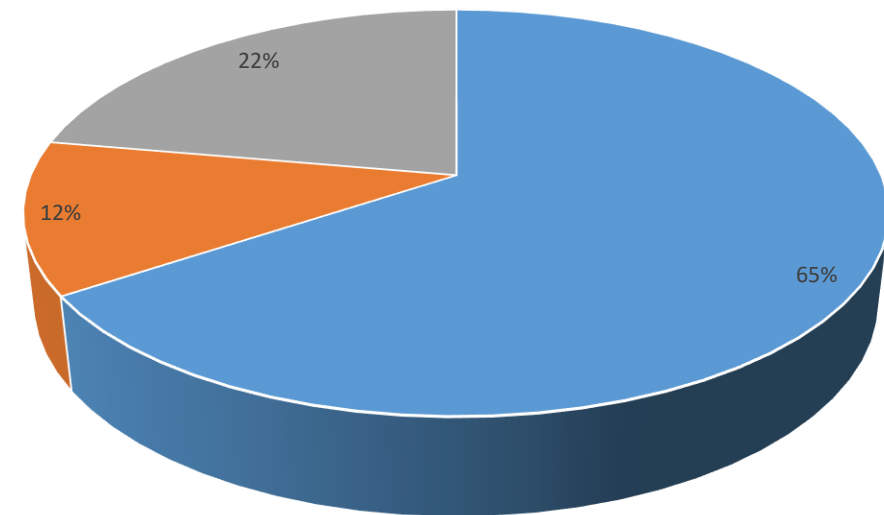
## Length of stay

Mean 10.25

Median 6

IQR 9.5

Outcomes transferred to MICAS  
West hub Aug 2020 – Dec 21



■ Transferred to ward ■ RIP ■ Repatriated



# INDIRECT CARE



# BED INFORMATION SYSTEM (BIS)

National Status (All critical care units & off-unit occupancy figures)

Open/Staffed Beds	Occupied Beds	Invasively ventilated (n)	Cleared For Discharge	Reserved/ Assigned Beds	Available	Closed Beds	Last Updated
362	<u>237</u>	158	<u>23</u>	24	<u>117</u>	36	27/04/2020 11:16:30

## National External View

Hospital / Unit View Status at 28/04/2020 17:52:54

Hospital	Unit	Total No. Beds	Open/Staffed Beds	Occupied Beds	Invasively ventilated (n)	Cleared for Discharge	Reserved Beds	Available	Last Updated	Contact Info / Consultant on Call
St James	GICU	1	3	4	5	8	9	-	27/04/2020 11:02:17	Contact Ph: 01 4162561
Tallaght (TUH)	OFFUNIT	12	4	4	3	3	5	-	09/04/2020 15:36:30	
Portlaoise	ICU	2	2	1	-	1	-	1	31/03/2020 09:36:37	Contact Ph: 057 8696573

# ICU SURGE COORDINATOR

- To facilitate the referring hospital sourcing an accepting ICU
- Oversight of dynamic ICU availability
- In partnership with Bed Information System
- To streamline the referral, discussion with receiving consultant
- To expediate the MICAS referral



## ICU Bed Capacity Liaison

NAS CCRS in partnership with NOCA and Critical Care Programme (CCP) are providing an ICU bed liaison service to facilitate sourcing an ICU bed for the duration of this extreme Pandemic ICU Surge.

### Aims

1. To aid ICUs under operational stress and / or exceeding capacity (including surge capacity) to identify potential ICU capacity in other institutions
2. To streamline referral-acceptance process
3. To link to NASCCRS-MICAS service



# CROSS BORDER COLLABORATION



## North-South Critical Care Collaboration Group

### Emergency Assistance and Mutual Aid Protocol

#### Authority

A request for critical care emergency assistance and mutual aid may be initiated by either The Critical Care Network Northern Ireland or the National Clinical Programme for Critical

*'we want to encourage more cross-border treatment of patients, more deployment of healthcare staff from EU countries with extra capacity, to where it is needed most.'*

*EU Commissioner (2020)*



# NISTAR

Northern Ireland Specialist Transport & Retrieval



# CRITICAL CARE PARAMEDICS

*“To develop CCPs with the skills and competencies to work on NASCCRS MICAS platform initially, while building a foundation that will be adaptable to the wider NAS, and also match future PHECC education & training standards for Specialist Paramedic – Critical Care”*





# AEROMEDICAL CRITICAL CARE TRANSFERS

- Inaugural Critical Care aeromedical inter-hospital transfer by MICAS
- 31<sup>st</sup> January 2021



# SO WHERE TO NOW?

‘Transformative resilience here deals with the ability to use a shock to transform the health system to improve its functioning, invest and build a legacy for when the shock recedes and the new normal emerges.’

*Burke et al (2021)*



- COVID 19 THERAPIES
- RESEARCH
- MORE ICU BEDS
- COLLABORATION / INFORMATION SHARING
- COORDINATION
- RETRIEVAL NEEDS TO BE ROBUST
- DEVELOPING ROLES
- AEROMEDICAL SERVICES



# Thank you

*'Cooperating across borders  
can make the  
difference in saving lives  
by alleviating overstretched  
health care capacities in  
Member States. Solidarity  
saves lives'*

Commissioner Stella **Kyriakides**

- Thank you to the MICAS West nurse lead in assisting in data collection.
- A lot of people assisted the pathway of critically ill patients through the pandemic. Thank you to everyone who contributed to the MICAS service over this pandemic period, the staff who referred, the MICAS teams who worked tirelessly, the ICU staff who received, the NEOC team (National Emergency Operation Control), the porters and security... and everyone else.



*The philosophy of care in MICAS is to provide the highest quality care to critically ill patients, whilst transporting them to a facility that meets their medical needs, by an appropriately qualified and skilled team of critical care staff.*

*It ensures every patient is transported in a way that maximises, not only their medical care, but the safety, dignity and comfort of the patient and their families.*